THE COVEY HEADQUARTERS

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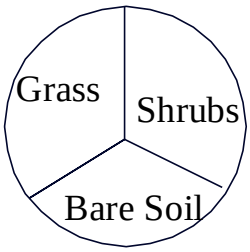
This newsletter is aimed at cooperators and sports-people in Missouri to provide information on restoring quail. This is a joint effort of the Missouri Department of Conservation, USDA-Natural Resources Conservation Service, and University of Missouri Extension. If you would like to be removed from this mailing list or have suggestions for future articles please contact jeff.powelson@mdc.mo.gov or 816-232-6555 x5772 or write to the address shown.



The name of this newsletter is taken from an old concept.....that a quail covey operates from a headquarters (shrubby cover). If the rest of the covey's habitat needs are nearby, a covey should be present. We are encouraging landowners to manage their quail habitat according to this concept. Use **shrubs** as the cornerstone for your quail management efforts. Manage for a **diverse grass, broadleaf weed and legume mixture and provide bare ground** with row crops, food plots or light disking **right next to** the shrubby area.

Managing "Odd" Areas for Big Benefits - Part 2 of 3: Field Borders

David Hoover, Small Game Coordinator, Jefferson City

- *This is the second in a series of 3 articles addressing ways in which managing "odd" areas on your property can yield productive wildlife habitat and compliment other habitat management efforts. Field borders are one of several conservation buffer practices that have the potential to provide quality wildlife habitat, and improve farm profitability.*

Field Borders as Habitat

The increased demand for food and fiber around the world has led to many technological advances in agriculture and an overall intensification of farming practices. This has resulted in little available habitat for wildlife on many farms. In this setting, establishing field borders planted to native vegetation (grasses and wildflowers) can provide critical wildlife habitat for many grassland and early-successional bird species, including the bobwhite quail. In addition, field borders can provide other valuable ecological services such as improved water quality, by reducing soil and chemical runoff, and if established to a diverse mixture of native grasses and wildflowers, an increase in beneficial insect populations, especially pollinators.

Research conducted in multiple states, including Missouri, has shown that bobwhite quail were more abundant on row-crop farms with field borders compared to those without. If established to a diverse mixture of native vegetation and managed properly, field borders provide valuable nesting and brood-rearing habitat for quail as well as many non-game songbirds. From a wildlife standpoint, the wider the field borders and more acres dedicated to this practice the better. However, as little as a 30-foot wide border around a 40 acre field, equaling 3.6 acres or 9 % of the overall field, can dramatically increase usable habitat for quail. And, if established next to other non-cropped and minimally disturbed areas such as roadside right-of-ways, creeks, and woody draws the wildlife benefits can be multiplied.

Economic Benefits of Field Borders

State and federal cost-share is often available for establishing field borders, but the most popular program for this practice, and other conservation buffer practices, is the Conservation Reserve Program's (CRP) continuous sign up. This federal program, administered by the Farm Service Agency (FSA), provides cost-share to establish the practice, as well as an annual rental payment.

An economic analysis of the CRP practice, CP-33, Habitat Buffers for Upland Birds, was conducted several years ago by the Missouri Department of Conservation (MDC) and the Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri. The results showed that establishing CP-33 field borders in crop fields next to woody cover increased farm returns from 25 cents to $2.49 per acre. The analysis even considered the alternative management approach of bulldozing the woody cover along the field edges. Higher returns were produced by establishing CP-33 buffers between the woody cover and crop fields than from mechanically removing the woody cover.

So whether you are interested in improving wildlife habitat, or increasing economic returns, establishing field borders can help you achieve your goal. It is important to remember, however, that in order to provide the wildlife benefits, field borders should be planted to a diverse mixture of native vegetation, managed properly so as to maintain the diverse planting and provide year-round cover.

Do Fences Really Help Wildlife?

Matt Curry, Private Land Conservationist, Marshfield

It can be debated if constructing a fence can or should be considered a wildlife habitat project, but I have a landowner who has recorded some great breeding bird survey results following a woodland exclusion project.

Gene and Andrew Kinslow are a father and son duo who own adjoining properties and have a cow/calf beef operation. Their goal when we met was to exclude livestock from their woodlands. Andrew started the bird survey work on their property in 1994 and has been banding since 1999. They first constructed fence to exclude their livestock from over 200 acres of woodland in 2005. Several years later they cleared a glade that was about one acre and planted a few acres of native grass.

When asked, Andrew provided the following before and after observations:

- Since we started excluding cattle from the woodlands in 2005 and then with native warm-season grass restoration we have a number of interesting items of note. The big change I see is in the ground and understory layers. Those have significantly increased since the habitat work.

- The fencing work in conjunction with warm-season grass restoration has significantly increased the habitat in the browse line of 0-6 feet all throughout the area. In the past you could squat down and basically see all the way through the woodlands due to the browse line. This has filled in surprisingly fast and is prime habitat for fledgling feeding and shelter.

- Some species evidence of the changes: Kentucky warbler was rarely caught in the time frame 1999-2005. Since we began fencing the woodlands we have had increasing numbers of this species to the point now where it is one of our top five captures at the station. Similar species following this pattern include Louisiana Waterthrush, White-eyed Vireo, Northern Parula, and Black and White Warbler. The recent captures of Worm-eating Warblers with brood patch and cloacal protuberance are evidence that the ground cover is significant now for these ground nesting birds to be breeding on site whereas before this was not observed. All of these species are neotropical migrants.

- On the resident side, Carolina Wren numbers have dramatically increased as well as Tufted Titmouse. While we don't catch significant numbers of Red-headed Woodpecker, Yellow-throated vireo, and Wood thrush, the number of observations outside of banding has increased dramatically since fencing the woods. Another interesting find was the first documentation of Northern Saw-Whet Owl in southern Missouri, which occurred January 16, 2012.

- Establishing the native warm-season grasses has allowed Field sparrows, Yellow-breasted Chat, Blue Grosbeak, Palm warblers, Lincoln's sparrow, and others to show up on our surveys whereas before they were rarely encountered.

- I have Bobwhite sightings documented 10 out of 12 months for the farm. There numbers appear to be increasing due to the habitat work. The first documented wild turkey nesting in the native warm-season grass occurred in the summer of 2015. Eggs hatched with 9 poults last observed in late July. I know they had been utilizing the warm-season grasses prior to this, but this is the first documented nest I know fledged poults.

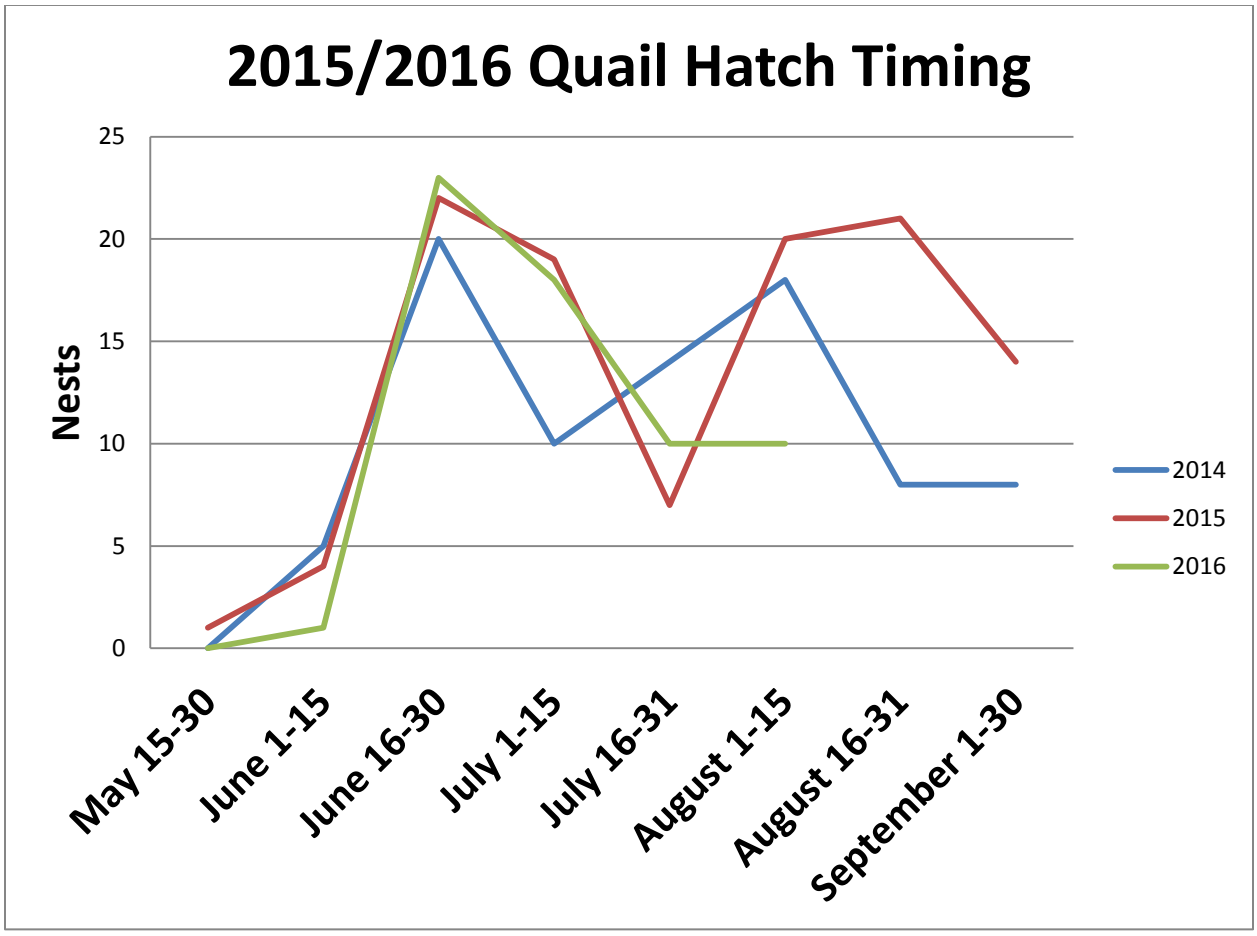
- Improved habitat is increasing the number and diversity of migrants. New species observed since habitat work include: Swainson's Hawk, American Golden Plover, Wilson's Snipe, American Woodcock, Black-billed Cuckoo, Olive-sided Flycatcher, Yellow-bellied Flycatcher, Least Flycatcher, Blue-headed Vireo, Philadelphia Vireo, Golden-winged Warbler, Tennessee Warbler and many others.

Fencing can make a big difference

Gene and Andrew have done a limited amount of true habitat manipulation. With the construction of a fence, the excluded area has evolved into high quality wildlife habitat. In the future they plan on completing woodland management practices and incorporating native warm-season grasses in their grazing system, so I am sure there will be further habitat improvements for many additional bird species.

SW Missouri Quail Study Nest Hatch Timing

Ask most Missouri Wildlife Biologists, or life-long quail hunters, when the "peak" hatch of quail occurs in this state. You will likely get a fairly consistent response, centered around mid-June. However, three years of radio collared quail data from nearly 900 quail in Southwest Missouri suggest otherwise. Perhaps the peak truly was mid-June for decades and only in recent times shifted later? Or perhaps we sometimes accept conventional wisdom as scientific fact? Or perhaps the peak was June 15th in some other place, and we adopted that same date, figuring all quail should act the same way? Regardless the past reasons for declaring mid-June the "peak" hatch, we have some scientific proof that this no longer holds true, at least for the past three years, that is if it ever held true!



Although there certainly is a "peak" shown each year in June, when taking the median date of most birds' first nests, this peak is actually closer to June 30th. Each year we also observed a definite lull in nests scheduled to hatch in late July. But 2014 and 2015 we also observed a secondary peak, nearly as high as the June peak, in August. It's quite possible 2016 will also play out the same; we just haven't made it that far yet at the time of this article. Another consideration is that, although there is a lull in July, there is still nesting. This graph depicts hatch dates. So even though there is a reduction in nests hatching in late July, there are still nests laying, and many beginning incubation in July, resulting in the August peak. One other important note is our August peak is nearly equal the June peak, but with fewer birds being radio tracked, due to mortalities. So in reality, the proportion of nests per hen scheduled to hatch in August is actually HIGHER than the proportion of nests per hen in any other month. Some of the August peak is re-nests, from birds who lost their first nest to predation. A rare few August hatches are from second nests, which are birds who successfully raised a brood earlier in the summer and already kicked them loose to live on their own. Most of the August peak nests are actually first nests.

What is the moral of the story? First, either our perceptions of nest timing in the past were wrong, or they were right, but something has now changed. Second, and most important, quail are nesting all summer, whether in the laying phase, incubating, or hatching, it is occurring every week of the summer. Consider this next time you decide to mow a little extra!

Grazing for Conservation **Max Alleger, Grassland Bird Coordinator, Clinton**

A stock trailer stops at Talbot Conservation Area. The manager opens the gate, and the driver unloads 30 head of cattle into a field of green grass. That's right – cattle. On a Missouri Department of Conservation grassland area.

The value of grazing for conservation may not be clear at first glance. Some people equate grazing with environmental problems, and examples of poorly managed grazing abound. Nevertheless, well-managed grazing creates cycles of disturbance and regrowth that can dramatically improve grassland habitat, and it may be essential to the healthy function of the grassland community as a whole. This is why the Department of Conservation partners with livestock producers to graze some areas that it owns or manages. It's also why the Department has launched a long-term study to explore the effects of conservation grazing on native grassland communities.

Conservation Grazing Mimics Natural Processes

Missouri's fertile soils and humid climate support prolific plant growth. Grasslands, whether introduced or native, that aren't managed periodically with fire, grazing, or some mechanical means become too thick and tall for use by most wildlife within just a few short years. Think about how tired you feel after hunting or hiking through thick, tall grass for a few hours. Now imagine trying to navigate a sea of tall grass as a thumb-sized quail chick, box turtle, or crawfish frog.

Historically, fire and grazing kept prairies free of tall trees and created a shifting mosaic of diverse habitat patches across the landscape. Bison and elk no longer roam Missouri's grasslands, but managers can use cattle to sculpt the habitat into short, tall, dense, and sparse patches that comprise a thriving grassland community. Managers must focus and refocus grazing season-to-season and year-to-year in order to move these habitat patches across the landscape. They frequently use prescribed fire to focus grazing intensity. This approach, called patch-burn grazing, relies on the animal's preference for grazing fresh regrowth on recently burned sites. The result mimics the historic impact of native grazers on a much smaller scale. Managers also use temporary electric fences to concentrate grazing disturbance on overgrown sites. Regardless of the method, the aim is to shift grazing intensity across the landscape over time to avoid grazing the same area in the same manner year after year.

Matt Hill manages Wah'Kon-Tah Prairie as well as a number of other grasslands in and around St. Clair County. He says, "Of all the practices we depend on – prescribed fire, mowing, haying, spraying, and grazing – only the combination of fire and grazing meets our goal of providing diverse vegetative composition within a management unit because of its ability to provide a mosaic of varying height and thickness."

Matt emphasizes that bare ground with clumpy grasses and scattered wildflowers is perfect foraging habitat for turtles, young birds, and many small mammals. "We also use grazing to help control invasive plants," he says. "For instance, we use cattle to graze tall fescue short so that herbicide application is more effective in the fall. Grazing accomplishes the site preparation that would otherwise require many staff hours, hundreds of gallons of diesel fuel, and wear and tear on tractors and mowers."

Conservation Grazing Benefits Wildlife

Managers and ecologists still have much to learn about how grazing affects individual species, but available data and theory suggest that grazing benefits grasslands and a wide range of wildlife species that depend on them. Managers consider results from Missouri-based grazing studies, as well as

relevant results of research conducted in nearby states, when deciding how to implement conservation grazing.

Invertebrates

The sheer diversity of insects and arthropods is mindboggling. As a result, there is no easy way to broadly categorize insect response to grazing or other management.

A study conducted near Stillwater, Oklahoma, found that grassland patches managed with fire and grazing produce about 50 percent more invertebrates, by weight, than do grasslands managed to be more uniform in appearance. Patchy pastures also held a wider variety of invertebrates than did the more uniform pastures. Managing habitat that meets the needs of a broad range of invertebrates can mean similar benefits to other members of the food web, including humans. This is because many of these invertebrates help pollinate crops that feed us.

Other studies have found that prior land use, such as tillage or the use of herbicide, can have lasting consequences that outweigh the effects of current management. A study in the Grand River Grasslands of northwest Missouri found that land-use history had a stronger influence on butterfly, ant, and leaf beetle community composition than current fire and grazing management. Efforts to conserve native insect communities may need to begin with native plant restoration.

Birds

Grassland birds are the most rapidly declining bird group in North America. Proper grazing can maintain heavy cover needed for nesting and protection from the weather while creating areas of short grass interspersed with taller wildflowers needed for brood-rearing. More importantly, grazing can provide these patches within easy walking distance for newly hatched chicks. Greater prairie-chickens, upland sandpipers, bobwhite quail, and others benefit from the variety and arrangement of habitat patches that conservative grazing creates.

Small Mammals

An Oklahoma study found that different kinds of small mammals select habitat based on the amount of plant litter covering the ground. For example, hispid cotton rats, prairie voles, and harvest mice chose patches with the most litter. Hispid pocket mice tend to favor areas with a medium amount of plant litter, and deer mice are more abundant in areas with little plant litter. Grasslands that provide patches with varying amounts of litter meet the needs of a wider diversity of rodents, thereby providing a more diverse food base to their predators.

Grazing Diversifies Grass Plantings

Many grasslands on conservation areas were managed as crop fields or fescue pastures by previous landowners. Department staff have planted some of these fields to diverse mixes of grasses and wildflowers harvested from local native prairies. On others, they established commercially available native grass cultivars and legumes. Increasingly, public land managers agree that many of these grasslands are out of balance because grasses have out-competed broadleaved plants to an extent that diminishes habitat benefits. Conservation grazing is proving to be an effective, cost-efficient means of temporarily suppressing dominant grasses and creating a more open habitat structure so a wider variety of plants – and animals – can thrive.

A prime example of the benefits of grazing may be found at the Robert E. Talbot Conservation Area in Lawrence County. One of the older plantings there had become “grassed-in,” with limited plant diversity and a problem with the invasive exotic plant sericea lespedeza. Patch-burn grazing was implemented in 2011. Since then, grassland bird diversity has increased and bobwhites now regularly choose the site to nest and rear their chicks. In fact, radio telemetry has shown that quail prefer grazed areas over all other available habitats on the area. Grass dominance has decreased, and native wildflower diversity has

increased. Sericea lespedeza has become a less-serious problem because grazing promotes more effective control of this weed with less herbicide. Essentially, the reintroduction of the natural processes of fire and grazing helped transform what had become a stagnant planting into a more vigorous and complex plant community that requires less staff time and money to maintain.

Conservation Grazing Help is Available

The Department works with farmers and landowners across the state to help them improve wildlife habitat via well-planned prescribed fire and grazing management. The intent is to help them support wildlife and conserve natural resources while maintaining or even improving grazing enterprise profitability. Visit https://mdc.mo.gov/contact-engage to find assistance in your area.

Census the Quail on your Property this fall

Fall quail whistling counts should be conducted in October. The maximum distance a quail whistle can be heard is 800 yards, but on average, 547 yards is the limit, so space listening points 1,000 yards apart. With a 547-yard listening radius, you are theoretically hearing quail in a 194-acre circle around you. If trees or topography limit your ability to hear quail whistling 547 yards away, listening stations can be closer together. Put listening stations on ridgetops to maximize the area you survey each morning. Permanently mark each listening station so they can be used every year. Listen only on calm and clear mornings starting 45 minutes before sunrise during the last 3 weeks of October. Listen until about 10 minutes before sunrise. Generally you will not hear the familiar "bobwhite" during the fall calling period. The covey call is a clear load whistle vocalized as "koi-lee." Listen carefully because the call typically lasts only 30 seconds. For best results, be consistent in the way you collect the data. Keep track of all data and keep it on file for year-to-year comparison.

Small Game Hunting Prospects

Thanks for your interest in small game hunting! Missouri Department of Conservation (MDC) staff develop the Small Game Hunting Prospects document to help small game hunters across Missouri learn more about the game they pursue, factors that affect the presence and abundance of game, and where to hunt various wildlife. Find the updated document on the MDC website – www.mdc.mo.gov. Small Game Hunting Prospects blends the results of population trend surveys with introductory information on small game species, their management, and hunting tips.

Small Game Hunting Prospects covers a variety of small game species and highlights Department conservation areas statewide where various species are found. To find huntable conservation areas not featured in Small Game Hunting Prospects, you can search the Conservation Department's Places to Go webpage at short.mdc.mo.gov/Z4V.

Sections include profiles of popular small game species, Manager's Notes for a sample of Quail Emphasis Areas across the state, and the Small Game Grab Bag with tips and tricks for small game hunters. Species profiles include information on life history, habitat management, ongoing research, and a list of featured hunting spots for 2016-17. Manager's Notes highlight management on a sample of conservation areas and provide hunting prospects for small game on that area.

Our intent is that new and seasoned hunters alike will use this resource to learn more about the game they hunt and try out a new hunting spot. For season dates, limits, permit information, and a list of areas with nontoxic shot requirements, please see the 2016 Missouri Hunting and Trapping Regulations booklet or the 2016 Migratory Bird Hunting Digest.

Youth-Only Quail and Pheasant Season

To provide more opportunities for hunters ages 6 through 15, the Conservation Commission has established youth-only quail and pheasant seasons. Both seasons take place October 29 - 30, 2016. Youth who are not hunter-education certified must hunt in the immediate presence of a properly licensed mentor; however, the mentor may not hunt.

Fall Covey Headquarter Calendar

September

Begin burning native grass plantings to encourage wildflowers and set back thick grass
Till firebreaks and new food plot areas prior to the onset of winter weather
Seed wheat, barley or rye into tilled firebreaks or food plots
Spray brome and fescue – eliminate these grasses from shrub thickets, fencelines, and field edges

October

Prepare areas for edge feathering by spraying brome and fescue where trees will drop
Conduct quail covey counts this month
Disk your CRP acres this month to encourage broadleaf plants
Spray native warm-season grasses for invading brome and fescue after a killing frost
Prepare ground for spring tree and shrub plantings
Take a kid quail and pheasant hunting the 29th and 30th

November

Dormant seed CRP pollinator mixes after mid-November
Order your covey headquarter shrubs from the MDC nursery through April

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